AN ANALYSIS OF STUDENT LEARNING STYLE AND ATTITUDE TOWARD SCHOOL

MASTER'S PROJECT

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DEDICATION

This paper is dedicated to my husband Jim and daughters Lyndsay and Jill who gave me space and support.

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CHAPTER I

INTRODUCTION

Overview

Educators are aware that children differ in many ways. One of the ways in which they differ is the way they learn or perceive and process information. These differences have been termed learning styles. A learning style is the way a person absorbs and retains information and skills (Dunn,1984). Learning style suggests that students learn through a wide range of modalities.

Before the 1960's, researchers had not tried to identify whether students learned better through auditory or visual perceptions or through a combination of senses. Researchers were not aware that some children learn by touching while others need whole-body or kinesthetic experiences to learn and retain the learning (Dunn & Dunn, 1978).

Although children's methods of perceiving or learning differ, the majority of school activities involves printed or verbal instruction (Jacobsen, Eggen, Kauchak, 1993). It has been estimated that 90% of all instruction occurs through the lecture and question-and-answer methods, yet only two-to-four students in each group of ten learn best by listening (Dunn & Dunn, 1979). The child who does not learn well through the use of printed or verbal instruction is at a disadvantage. Therefore, teachers need to foster a variety of learning experiences (Learning Styles, 1991).

Teachers and administrators can use the understanding of different learning styles as a basis for providing more responsive instruction and curricula. Instruction that allows for a variety of learning styles provides opportunity for children to learn in the way that is easiest for each one of them. It provides the teacher with other teaching tools to use to meet individual student needs. Teaching and learning are improved when teachers use multiple instructional strategies in the classroom (Dunn & Dunn, 1978; Haggerty, 1995; Lawrence, 1982; McCarthy, 1990).

By meeting the learning needs of students,more successful learning may occur, which could result in more positive student attitudes toward learning and school (Cavanaugh, 1981; Dunn, R., 1984; Griggs, 1989; Neely & Alm, 1993; Stewart, 1990). Attitude affects a child's ability to receive information, to respond to the material, and to value the material. If a student does not have a positive attitude toward school, he/she will not achieve (Burns, Roe, & Ross, 1992). Improved attitudes lead to higher student achievement and success in school (Neely & Alm, 1993; Seaton et al., 1993; Cavanaugh, 1981). When a student has a negative attitude toward school, it may be because he/she has never felt successful in school. There may be a mismatch between the way he/she learns best and the way he/she is expected to learn.

Problem Statement

In order to foster positive attitudes toward school, many factors must be considered. One of these factors is learning style. It is important for teachers to understand students' preferred learning styles in order to better meet students' needs and ultimately affect students' attitudes.

Purpose of Study

This study looks at the relationship between different learning styles and positive or negative attitudes toward school. The effort is to help educators increase their awareness of the importance of meeting the learning needs of all students through the understanding of different ways of learning.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

According to Reiff (1992), as early as 334 B.C. Aristotle noticed that each child possessed specific talents and skills and discussed the idea of individual differences in children. These differences in children translate into differences in their approaches to learning or how children prefer to learn, their style preferences.

A style is a preferred way of using one's abilities. It is not only an ability itself but a preference (Sternberg, 1994). Some students prefer learning styles that include hands-on experiences (kinetic learners), while others are visual or auditory learners. Students can vary the style they use to suit different learning tasks even though they do have styles they prefer (Stewart, 1990).

There exist numerous theories of how people learn. Dunn and Dunn (1978), Gardner (1983), McCarthy (1990), and Renzulli and Smith (1978), to name just a few, have developed models and techniques for explaining how learning occurs. They describe the phenomena of learning from different vantage points.

In an effort to train teachers to be better able to help educationally disadvantaged students in public schools, Dunn (Dunn & Dunn, 1978) was asked to direct a graduate program for the New York State Department of Education. Over a period of three years a large group of

teachers-in-training, classroom teachers, college professors, and public school administrators worked together to help these children learn. A variety of methods was used (learning activity packages, games, programmed learning, small groups, etc.). It was noticed that some methods were very effective with certain children but did not work with others. This led Dunn and her husband to examine why some methods were so successful with only particular children.

The Dunns began their examination by collecting data from eighty years of previous research in industry and education (Dunn & Dunn, 1978). They classified the data into categories. These categories attempted to show all of the elements that influence student learning. The four categories are environmental, emotional, sociological, and physical. The environmental category includes the elements of sound, light, temperature, and design. The emotional category has the elements of motivation, persistence, responsibility, and structure. The third category, sociological, includes peers, self, pair, team, adult, and varied elements. The elements of the physical category are perceptual, intake, time, and mobility (Dunn & Dunn, 1978).

Their research of the literature led Dunn and Dunn in 1968-1969, to develop a series of questions to identify student learning style preferences. They tested and revised their instrument over the next five years using

the help of graduate students from St. John's University in Queens, New York and seven New York school districts (Dunn & Dunn, 1978). The Dunns used the information to develop their Learning Style Inventory (L.S.I.). This instrument has been further modified by a colleague, Gary E. Price.

The inventory analyzes the conditions under which the students prefer to learn. After students respond to the inventory items, a computerized summary of each student's preferred learning style and a computerized class summary are provided so the teacher can group students with similar styles (Dunn, Dunn, & Price, 1993). The Dunns' research concluded that students, when exposed to a teaching style compatible with the way they learn best, score higher in achievement and attitude (Dunn & Dunn,1978).

Renzulli and Smith (1978) also developed a learning style inventory. They believe that individualized instruction is one of the cornerstones of modern education. However, they feel that individualization, as practiced in the traditional classroom, only aims at allowing students to progress through the curriculum at their own rate; it does not address a student's preferred style of learning. Through their work, Renzulli and Smith wanted to assist teachers to better individualize instruction. They thought that by assessing learning style through identifying the students' preferred

instructional practices, the teacher would have information that could be used to determine how to best present material to each student. This information could help the teacher take into consideration how the students would like to pursue the activity as well as the individual student's rate of learning (Smith & Renzulli, 1984).

To develop their Learning Style Inventory, Renzulli and Smith reviewed educational literature and identified common methods of classroom instruction. They selected eight catagories (a ninth was added later) of instruction. They then generated seven items representing activities identified with each of the eight catagories of instruction. These items were mixed together, not sorted by instructional style, and given to a group of 23 education professionals who were asked to review the items and classify them according to their category of instruction.

In order for the item to be included in the Learning Style Inventory, 75% of the professionals had to give it identical placement. The items were then put together in a Likert-type questionnaire (Renzulli & Smith, 1978). The questionnaire asked students to respond to 65 items that identified different methods of learning. Among them were drill and recitation, simulation, discussion, projects, games, programmed instruction, peer teaching, lecture, and independent study. The students' responses indicated how

pleasant they found each learning activity. The results of the Renzulli and Smith research differ from other projects. Not only has their research contributed to the existing knowledge regarding learning style, but it also provided a method to help teachers compare their instructional strategies to the learning preferences of the students in their classrooms.

McCarthy (1980) developed a learning style model named The 4MAT System that, if followed, insures all learning styles are addressed by the teacher. Her model is based on the work of eighteen researchers that she brought together at a conference to explore diversities of people and how they learn. The researchers synthesized their work and came up with four learning types. One type, the Imaginative Learner, is a divergent thinker who learns through personal experience. Another type, the Analytic Learner, uses logic, intellect, and facts to learn. The third type of learner functions through inferences drawn from sensory experience, for example, hands-on activities. He/she is termed the Common Sense Learner. Type four is the Dynamic Learner. This learner likes to act on and test experiences. All four styles of learning are equally valuable, but students are usually more comfortable with one style than another. McCarthy feels it is very important to teach to all four learning styles and developed a system to take the teacher and the learner through a cycle that ultimately includes all four

styles (McCarthy, 1990).

McCarthy's system is linked to the natural progression of learning. McCarthy saw learning as a cyclical process or circle with each learning style making up one quadrant of the circle. As each part of the learning circle is experienced, each type of learner is engaged. However, as McCarthy saw it, all learners use all styles of learning to some extent. McCarthy stated "We sense and feel, we experience, then we watch, we reflect, then we think, we develop theories, we conceptualize, then we try out our theories, we experiment. Finally, we apply what we have learned to the next similar experience" (McCarthy, 1980, p. 49).

Gardner (1983) takes a much broader view of how children learn. Gardner believes that the scholastic definition of intelligence is very narrow; he believes that intelligence is a means of learning as well as a method of processing. Therefore, different intelligences are equivalent to different learning styles. Gardner deliberately chooses to call his theory of learning "Multiple Intelligences." He does this to enlarge the concept of intelligence to include a wider variety of abilities and preferences than traditionally recognized (Gardner,1983).

Gardner has identified seven different intelligences. These intelligences are linguistic, interpersonal, intrapersonal, bodily-kinesthetic, spatial, logical-

mathematical, and musical (Gardner, 1983). They are comparable to what others term learning styles. Gardner gathered and analyzed information from a wide variety of independent research fields to determine these seven categories. He feels these seven intelligences are universal to the human species but manifest themselves differently in different cultures. He also feels that different cultures have allowed for or encouraged the development of some intelligences over others. For example, to become a Puluwat sailor in Micronesia, a navigator must use bodily-kinesthetic and spatial skills to stay on course, using awareness of the sea, weather, stars, and land forms (Gardner, 1983, p.202). A Western sailor, on the other hand, would use chart-reading skills and nagivational equipment.

Gardner feels traditional Western schools focus primarily on linguistic and logical-mathematical skills. This focus limits students' achievement, according to Gardner. Teaching all students in the same way with the same materials does not take into account the individualized ways students learn (Gardner, 1983).

For many years, individual differences have been noted, but some teachers remain unaware of the effect that learning styles have on a student's ability to understand and retain new information and skills. It has been noted by Griggs (1989), that the predominant mode of instruction in most classrooms is whole-group instruction. Haggerty

(1995) recognizes that some students do well with the math, logic, and language-oriented lessons of traditional classrooms, but others have different cognitive strengths. Teachers need to be aware of the diversity of human cognitive abilities, and to allow students to use their strengths or learning preferences in order to enhance their performance in the classroom. According to Cropper (1994), expecting all students to learn in the same way interferes with their ability to learn by creating stress, reducing motivation, and depressing performance. It is further noted by Dunn and Dunn (1978) that accommodating student learning style preferences results in increased academic achievement and improved student attitudes toward school. Although it is frequently reported by teachers involved in studies on learning styles that student attitude has improved, little research has been done analyzing this relationship.

Research has also found there are differences in the learning strengths of both high and low achievers. The higher the students' achievement levels, the stronger and more varied their perceptual strengths (Allred & Holliday, 1995). More than half the population of gifted students does not match its tested ability with comparable achievement in school. When teaching styles are adapted to fit the learning styles of gifted children, their talents begin to emerge (Cropper, 1994).

In another study, a school district in Aberdeen,

South Dakota used the Dunn and Dunn learning style model as a guide for improving academic performance. Five teachers from the district participated in an institute presented by the Dunns at the Center for the Study of Learning and Teaching Styles, at St. John's University in New York. These five staff members returned to Aberdeen to train the district's teachers. Many successes were reported by the Aberdeen teachers who implemented learning style awareness in their classrooms. Among the success stories was that of one learning-disabled student. This student went from a slow-paced reading group to scoring in the 90th percentile when his learning style was taken into consideration. Another student consistently scored near the eighty-sixth percentile in reading and social studies. Within four-to-six weeks after the program began, his scores rose to between the ninety-fourth and ninety-sixth percentile range. Many other teachers in this same study reported significant and consistent success in their classrooms when they used learning-style-appropriate teaching strategies (Neely & Alm, 1993).

Learning style research has also been done in an effort to study dropouts. More than one-fourth of the nation's delinquent population is composed of students in the top fifteenth percentile in intelligence. Fifteen percent of these delinquents are in the top three percent of the nation, intellectually (Harvey & Seely, 1984). In a study comparing high school dropouts with students

remaining in high school, the dropouts indicated a significantly stronger preference for learning in varied ways than the comparison groups (Griggs, 1989).

Although most learning style research recognizes the importance of adapting classroom lessons to students' learning styles, research by Smith and Renzulli (1984) indicates that sometimes a mismatch between teaching strategy and students' learning styles can actually enhance student growth as children grow to be more like their teachers. Nevertheless, this research warned against having children and teachers with mismatched styles together for long periods of time, as this could lead to frustration, and possibly burnout, because of the stress.

Although attitude is often mentioned in the research literature investigating learning style, very little work has been done to done to identify a specific relationship between attitude and learning style. It seems intuitive that learning style awareness can help teachers find strategies that are most effective for their students, resulting in more positive student attitudes in the classroom. This research project will investigate this relationship.

CHAPTER III

PROCEDURE

Sample

The sample consists of 118 boys and girls in five fifth-grade classes. Each class had a fairly equal number of boys and girls. The children range in age from about eleven to twelve years. The school is an elementary school of approximately 700 students in grades kindergarten through five. The children are grouped in heterogeneous, self-contained classrooms. The community is a suburban community located on the outskirts of a large Midwestern city in southwestern Ohio. The school district is a mixture of farmers, blue collar, and professional people.

Instrument

An instrument was developed to determine the students' learning style preferences. Several existing learning style instruments were considered but rejected for different reasons. The Dunn, Dunn, and Price Learning Style Inventory was very expensive to administer and evaluate, as were several other commercial inventories (Dunn, Dunn, & Price, 1993). Some inventories were rejected because they were too complicated or they were suitable for adults but not children. It was determined after discussions with school psychologists, the Learning Disabilities teacher, and professors, that a simple instrument identifying students by three main learning

style modalities would best fit the study. A learning style checklist for parents to use to identify their child's learning style was used as a basis for developing the instrument (Bradway & Hill, 1993). The checklist was adapted by phrasing statements as questions, shortening or deleting items, and simplifying vocabulary so the children could easily read and understand the sentences. Allowing children to identify their learning style is supported in the literature. Dunn stated "One of the most frequently asked questions is, 'Do students really know their own styles?' Having tested more than 350,000 youngsters, we can verify that most do . . . " (Dunn, 1984, p.3). Smith and Renzulli also noted " . . . research on the ability of students to predict their more effective learning modality . . . lend(s) support to the possibility that students can predict their own learning style (Smith & Renzulli, 1984, p.46).

The items included in the final instrument were divided into four parts. The statements in each of the first three parts of the learning style instrument corresponded to traits that characterize each learning modality. Each set of eight statements described a certain type of learner. (See Appendix.) The visual learning style was represented in the first part, auditory in the second, and kinetic in the third. The instrument was used to identify the students as visual learners, auditory learners, kinetic learners, or a combination of

learning styles.

The fourth section of the instrument was used to determine student attitude toward school. Twelve statements about school were listed. The student was instructed to check the statements with which he/she is in agreement. If the statement was a positive statement it counted as one point. Negative statements were assigned the value of zero. Each student could earn from zero to twelve points, with zero indicating the most negative attitude and twelve the most positive attitude toward school.

The instrument was administered to a similar group of about 25 fourth grade students to test for reliability before being used in this research. Changes were implemented based on problems encountered and suggestions made during this preliminary test.

Method

The instrument was administered by the researcher in each of five individual classrooms. The directions were explained to the students and the survey was read orally to insure understanding of word meaning.

The learning style groups were determined by responses to the three learning style preference sections of the instrument. If the student had a total of five or more points in any one section of the learning style instrument, he/she was placed in that learning style group. If the child had equal points in all groups, or if

he/she scored five or more points in more than one section, he/she was placed in the fourth group of learners (referred to as a combination of styles), i.e. children who prefer to learn through more than one modality.

The independent variable is learning style. The dependent variable is attitude toward school. The data were collected and used in a one-way analysis of variance in order to identify whether attitude toward school is affected differently by different learning styles. The null hypothesis was that no relationship would be found between student learning style and his/her attitude to school, that is, the mean attitude score for all four groups of students (representing the four learning groups) will be equal.

Definitions

The following definitions have been used in this paper.

Attitude is the predisposition or tendency to react specifically towards an object, situation, or value; usually accompanied by feelings or emotions; attitudes cannot be directly observed but must be inferred from overt behavior, both verbal and nonverbal (Good, 1973).

Instructional strategies are activities that are systematically arranged and undertaken by a teacher to help students achieve particular objectives.

Learning modality pertains to a physical sense like sight that the individual uses most as learning takes place; the

prime modalities are visual, aural (auditory) and tactile (kinetic) (Hawes & Hawes, 1982).

Learning style is an individual's preferred way to receive and process new information.

Learning theory is the psychological explanation for how learning takes place; the systematic study of the learning process (Shafritz, Koeppe, and Soper, 1988).

Auditory learner is a learner who prefers to use the aural modality to take in information.

Kinetic learner is a learner who learns or takes in information through movement and touch.

Visual learner is a learner who prefers to use the visual modality to take in information.

CHAPTER IV

RESULTS

Findings

The total number of completed instruments was 118. The instrument was administered on consecutive days in five fifth grade classrooms over one week's time.

Table 1 shows the results of the one-way analysis of variance (ANOVA). The purpose of the analysis was to compare group means regarding attitude. The respondents were sorted into learning style categories based on their self-selected preferences. Then a mean score was determined for each of the four groups from the attitude survey. The ANOVA compared the means of each group's attitude score to determine if learning style preferences were significant in ascertaining attitude toward school. The results indicate that the mean attitude for all four groups was equal. No statistically significant effect was revealed as seen in Table 1 (F Probability = .5541), so the null hypothesis is accepted (McMillan, 1996). This means

TABLE 1 One-Way Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Probability
Between groups	3	19.0464	6.3488	.6998	.5541
Within groups	114	1034.31	9.0729		
Total	117				

TABLE 2 Frequency of Learning Style Preferences

Learning Style Group	N	n (%)
Visual Learning Style	118	9 (7.6)
Auditory Learning Style	118	12 (10.2)
Kinetic Learning Style	118	27 (22.9)
Combination of Styles	118	70 (59.3)

that, based on this research, learning style preference does not affect attitude toward school.

Table 2 identifies frequencies for learning style preferences. The learners are separated into four groups. The first group showed a visual learning style preference, the second group showed an auditory preference, and the third group showed a kinetic preference. The fourth group is composed of children who showed a variety of learning style preferences. The visual learning style group was the smallest. Out of 118 children, nine (7.6%) were visual learners. The auditory learning style group had twelve children, or 10.2%, while the kinetic group had 27 children (22.9%). The largest group was the combination of learning styles, which had 70 children (59.3%).

Table 3 identifies frequencies for visual learning style preferences. The items included represent the questions asked on the learning style instrument. (See Appendix.) Slightly over 88% of the children indicated

they enjoyed playing physical games more than board games. Only 11.9% of the children chose board games over physical activity. Almost 71% of the children thought writing and drawing aided their memory, while about 29% did not agree. Another group of almost 67% claimed their desks were neat and organized, about 33% did not. About 65% of the students indicated they were skilled at video games and another 65% found puzzles easy to solve. Of the eight items in Table 3, five had positive responses of about 63% or higher.

TABLE 3 Learning Style Preferences - Visual Frequencies

Visual Learning Style	N	Yes n (%)	No n (%)
Prefer to talk face-to-face	118	74 (62.7)	44 (37.3)
Good at video games	118	77 (65.3)	41 (34.7)
Puzzles are easy	118	77 (65.3)	41 (34.7)
Work is neatly done	118	52 (44.1)	66 (55.9)
Enjoys board games/ over outdoor games	118	14 (11.9)	104 (88.1)
Likes to work alone	118	38 (32.2)	80 (67.8)
Writing/drawing aid memory	118	84 (71.2)	34 (28.8)
Desk is neat/organized	118	79 (66.9)	39 (33.1)

Table 4 identifies the learning style preference of auditory learners. The highest percent of responses was a negative response to the statement "I prefer playground games that involve the use of word rhymes, like jump rope." Of the children responding, 83% indicated they did not prefer playground games that use rhymes. The next highest response indicates almost 67% of the children thought they got in trouble for passing notes and talking.

TABLE 4 Learning Style Preferences - Auditory Frequencies

Auditory Learning Style	N	Yes n (%)	No n (%)
Loves to talk on phone	118	61 (51.7)	57 (48.3)
Likes to read	118	65 (55.1)	53 (44.9)
School work not neat	118	68 (57.6)	50 (52.4)
Prefers word/rhyme playground games	118	20 (16.9)	98 (83.1)
Likes group work	118	79 (66.9)	39 (33.1)
Talks about feelings to others	118	66 (55.9)	52 (44.1)
Good at memorizing	118	73 (61.9)	45 (38.1)
In trouble for talking/ passing notes	118	78 (66.1)	40 (33.9)

Table 5 identifies frequencies for kinetic learning style preferences. The highest positive response indicates that 87% of the children prefered to play outside rather than inside. Over 80% of the children indicated that they are very coordinated and good at sports. The smallest percent of positive answers show that 32% of the children have trouble remembering what they see and hear.

TABLE 5 Learning Style Preferences - Kinetic Frequencies

Kinetic Learning Style	N	Yes n (%)	No n (%)
Quiet in class/noisy at recess	118	59 (50)	59 (50)
Prefers outdoor play	118	103 (87.3)	15 (12.7)
Likes messy art activities	118	78 (66.1)	40 (33.9)
Coordinated/athletic	118	95 (80.5)	23 (19.5)
Likes help from teacher	118	75 (63.3)	43 (36.4)
Uses actions to show feelings	118	61 (51.7)	57 (48.3)
Has trouble remembering what is seen/heard	118	38 (32.2)	80 (67.8)
Work/desk are messy	118	42 (35.6)	76 (64.4)

Table 6 identifies frequencies for attitude to school. A high percent of yes answers on the first six items indicates a positive attitude to school. A high percent of no answers on the last six items also indicates a positive attitude to school.

TABLE 6 School Attitude - Positive/Negative Frequencies

Attitude	N	Yes n (%)	No n (%)
1. School is important	118	99 (83.9)	19 (16.1)
2. School is fun	118	52 (44.1)	66 (55.9)
3. School is a good use of time	118	50 (42.4)	68 (57.6)
4. School is interesting	118	104 (88.1)	14 (11.9)
5. School is exciting	118	41 (34.7)	77 (65.3)
6. Everyone needs school	118	92 (78)	26 (22)
7. School is waste of time	118	12 (10.2)	106 (89.8)
8. School is boring	118	51 (43.2)	67 (56.8)
9. School is not fun	118	43 (36.4)	75 (63.6)
10. School is not a good use of time	118	20 (16.9)	98 (83.1)
11. School has too many rules	118	69 (58.5)	49 (41.5)
12. I do not enjoy school	118	32 (27.1)	86 (72.9)

In Table 6, the highest percent of positive responses in the top half of the table was for items one and four. Almost 84% of the children thought school was important, 88% found it interesting, but only around 35% thought school was exciting. Another 78% thought everyone needs school. The highest response rate to items seven through twelve was for numbers seven, ten, and twelve. Almost 90% of students did not think school was a waste of time. About 83% did not agree with the statement, "School is not a good use of time." Almost 73% indicated that they did not agree with the statement, "I do not enjoy school." It was, however, agreed by almost 59% of the children that, "School has too many rules."

Table 7 identifies the frequencies of positive responses to statements about school. The attitude portion of the instrument contained twelve statements about school. These statements were given values of "0" (negative) or "1" (positive). Table 7 identifies how many times students responded to statements about school in a positive manner. Two students (1.7%) gave no positive responses to any of the twelve statements. Two students (1.7%) each gave one positive response. Two additional students (1.7%) gave two positive responses out of the twelve possible. The largest group of respondents was nineteen, or 16.1%, who responded positively to eight statements about school. Thirteen students (11%) gave all positive responses (twelve) to the statements about school. Out of 118 students, 88 students

(74.6%) gave six or more positive responses. This means almost 75% of the students responded to at least half of the statements about school in a positive manner.

TABLE 7 Frequencies of Positive Responses Regarding Attitude Toward School

Number of Positive Responses Per Respondent	Number of Respondents	Percent of Respondents
0	2	1.7
1	2	1.7
2	2	1.7
3	4	3.4
4	7	5.9
5	13	11.0
6	9	7.6
7	9	7.6
8	19	16.1
9	14	11.9
10	10	8.5
11	14	11.9
12	13	11.0
Total	118	Total 100.0

Discussion of Results

As evidenced in chapter II of this paper, much work has been done in an effort to identify learning styles. It is interesting that this research study shows that a majority of students learn through a combination of styles, rather than in any one style. (See Table 2.) Almost 60% of the sample used a combination of learning styles. This means that a large part of the sample population is able to call on one of several learning styles depending on the material presented to it. The students are versatile and can learn in many ways. Almost 23% of the children were identified as kinetic learners. This suggests that about one-quarter of the sample learn best through movement and touch. To reach these students, educators could make an effort to include hands-on materials and manipulatives across the curriculum. Kinetic learners need movement, therefore the static atmosphere of traditional classrooms can be difficult for them to tolerate. It may be interesting to investigate if a similar proportion of adults exhibit a kinetic learning style. It might also be interesting to investigate the relationship of learning style with age to determine if certain learning styles are predominant at different ages, or if learning style remains the same as children develop.

While about 23% of the learners in this study are kinetic, 8% and 10% are visual and auditory, respectively. The other 60% of learners are in the combined learning

style group. The Dunns' research showed that 20% to 30% of school children are auditory learners, 40% are visual learners, and 30% to 40% are tactual/kinesthetic, visual tactual or some combination of styles (Dunn & Dunn, 1979, p.240). The most striking difference in the two sets of statistics is in the visual learning style group. The Dunns' group is five times larger than that found in this research. It is possible that the large group of combined learning styles in this study conceals the missing visual learners, as some of the combined learning styles were visual/auditory and visual/kinetic.

The purpose of the study was to investigate a relationship between learning styles and attitude toward school. Clearly, this study identifies no relationship. Perhaps a different type of instrument would have resulted in different findings. The difficulty encountered during the search for a simple, child-friendly, learning style instrument, suggests the need for the development of such. The use of different statistical techniques might also have been more successful in revealing valuable features of this sample.

However, the information gained regarding attitude to school is valuable. The recognition that everyone needs school is high (78% of the children agreed) and almost 84% thought school is important. Obviously, a positive attitude towards school is held by a majority of the students involved in this study. It is recognized that the

children's responses could have been influenced by their desire to please the teacher, or to try to give the "correct" answers. An attempt was made to avoid this possibility by emphasizing that the answers were not connected to grades, and the answers would be confidential as no names were used on the instruments.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

The purpose of this study was to examine the relationship between different learning styles and attitude toward school. The null hypothesis was that no relationship would be found between learning style and attitude toward school. This effort was made to help educators become more aware of the importance of understanding and meeting the differing needs of all learners.

The research literature on learning styles encompasses many different theories. Some learning style theories try to identify and categorize all elements that affect learning. Some identify learning types and present teaching systems to address and include all the types; some try to identify learning style as a means of individualizing curriculum. All learning style theories aim at increasing awareness of the variety of ways children learn and their preferences for using those ways. Research of learning styles in general is aimed at aiding teachers in an awareness of the needs and strengths of individual learners and to thereby encourage a wider use of a variety of teaching strategies. More flexible teaching is shown to enhance classroom performance by allowing students to learn in the way they prefer. Teachers who have used learning style awareness in their classrooms, report higher academic

achievement and improved student attitude. It has been suggested that accommodating learning styles will decrease the number of dropouts and lead to the greater success of both high and low achievers.

Although improved student attitudes were often reported by teachers in the research literature, very little direct research on the relationship between learning styles and attitude was found. For this research, an instrument was constructed and administered to 118 children to determine their learning style and their attitude to school. The research findings indicate positive student attitudes toward school. The one-way analysis of variance indicated no significant difference in attitude based on learning style.

Conclusions

Based on this research, attitude toward school does not differ for students with different learning style preferences. A more diversified sample may have yielded different results on the attitude portion of the instrument. The population from which this sample was taken is mostly made up of families who put great emphasis on the importance of school. A population from a school in a large city or a different location might give different results.

The way in which the learning style groups were separated could also have influenced the research. Because of the small size of the sample the learning groups were

limited to four. With a larger sample, the fourth group (learning style combinations) could have been broken down into visual and auditory learners, visual and kinetic learners, auditory and kinetic learners, or visual, auditory, and kinetic learners. This might have provided more insight into the relationship between learning style and attitude.

The school used in this sample promotes cooperative learning, the use of manipulatives, and hands-on materials in math and science. More traditional classrooms might have produced different results. If this learning style instrument measured accurately, a large number of students is flexible and uses a variety of learning styles. However, the number of children who prefer a kinetic learning style (23%) should be recognized and considered by educators.

Implications

Further research on this topic would be valuable. A more child-friendly instrument could be developed by interviewing teachers for input into creating such. A teacher checklist of learning-style characteristics could also be developed. A larger and more diverse sample would be beneficial to a study of this nature, and it might prove interesting to separate the population sample into male and female, to see what effect this would have on attitude.

APPENDIX

LEARNING STYLE EVALUATION BY MODALITY

DIRECTIONS: Place an X in front of every statement that you think applies to you or is most like you. If you are not sure you can leave the space blank. Please be honest. You will not be graded on this.

PART I

____ I prefer to talk to people face-to face, instead of on the telephone.

____ I am very good at video games.

____ I think puzzles are easy to do.

____ My school work is neatly done.

____ I enjoy playing board games such as Monopoly, rather than games like football and soccer.

____ I would rather work by myself than with a group.

____ If I write and draw things it helps me remember.

____ I keep my desk neat and organized.

____ TOTAL PART I

PART II

____ I love to talk on the phone.

____ I like to read in my free time.

____ My school work is not especially neat.

____ I prefer playground games that involve the use of word rhymes, like jump rope.

____ I would rather work in a group than alone.

____ I do not mind talking about my feelings to others.

____ I am good at memorizing poems, rhymes, and facts.

____ I sometimes get in trouble for passing notes and

talking.

____ TOTAL PART II

PART III

____ I am quiet in my classroom, but loud on the playground.

____ I prefer to play outdoors rather than inside.

____ I enjoy messy hands-on art activities like finger paint and papier mache.

____ I am very coordinated and good at sports.

____ I like the teacher to help me with my work.

____ I show my feelings by stomping my feet or hugging or jumping.

____ I have trouble remembering what I see and hear.

____ My work area or desk is usually messy.

____ TOTAL PART III

ATTITUDE EVALUATION

DIRECTIONS: Put a check in front of any of the sentences that you agree with or that are true for you.

School is . . .

____ important

____ a waste of time.

____ boring.

____ a fun place to be.

____ not a fun place to be.

____ a good way to spend time.

____ sometimes interesting.

____ not a good way to spend time.

I think that . . .

____ there are too many rules at school.

____ school is exciting.

____ everyone needs to go to school.

____ I do not enjoy school.

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